National Institute of Standards and Technology
Information Technology Laboratory

Cloud Computing Forum
and Workshop II

Nov. 4-5, 2010
Gaithersburg, MD

SAJACC Use Cases

Standards Acceleration to Jumpstart Adoption
of Cloud Computing

Breakout Sessions
Nov. 5, 2010

Overall Starting Points

- Want use cases that work across multiple clouds and in different environments
- Aim at specific use cases that can provide insight as to how clouds CAN work as well as demonstrations of how clouds work now
- Reference implementations to enable feasibility exercises
- Continuously growing, publicly accessible portal to showcase results

Methods to be used

- Initial use cases provided by government with community input
- Legacy specifications also provided for reference
- Generate use cases including testing
- Starting point: http://www.nist.gov/itl/cloud/use-cases.cfm
- Following methods of book by A. Cockburn, “Writing Effective Use Cases”

Cloud Computing Use Cases

Initial Cloud Computing Use Case TBD, 2010

A set of twenty five use cases that seek to express selected portability, interoperability and security concerns that cloud users may have.

****WORKING DOCUMENT****

http://www.nist.gov/itl/cloud/use-cases.cfm

SAJACC Presentation

- Error, failure and exceptions need to be documented and recorded
- Several different types of “actors” kept coming up and were documented by SAJACC for use in initial scenarios.
- Taxonomy from these initial exercises should be documented and recorded
- Several worked out scenarios were presented
- “SAJACC not about getting cloud started - it is already started!”

General Comments

- Of the 11 different cloud offerings approved by GSA so far, interoperability and portability between these has not been demonstrated. Should it be required? (Note: these are IaaS at present.)
- Many ways based on existing standards to meet each of the use case requirements
- Four breakout sessions followed (of which three met):
  - Actors
  - Missing Use Cases
  - Intellectual Property
  - Available Standards

Breakout Group 1: Actors

Lee Badger and Alan Sill

“Actors” = Anything With “Behavior”

- **Important Actors for Public Clouds**

Actor Name	Description
unidentified-user	An entity in the Internet (human or script) that interacts with a cloud over the network and that has not been authenticated.
cloud-subscriber	A person or organization that has been authenticated to a cloud and maintains a business relationship with a cloud.
cloud-subscriber-user	A user of a cloud-subscriber organization who will be consuming the cloud service provided by the cloud-provider as an end user. For example, an organization's email user who is using a SaaS email service the organization subscribes to would be a cloud-subscriber's user.
cloud-subscriber-administrator	An administrator type of user of a cloud-subscriber organization that performs (cloud) system related administration tasks for the cloud-subscriber organization.
cloud-user	A person who is authenticated to a **cloud-provider** but does not have a financial relationship with the **cloud-provider**.
payment-broker	A financial institution that can charge a **cloud-subscriber** for cloud services, either by checking or credit card.
cloud-provider	An organization providing network services and charging **cloud-subscribers**. A (public) **cloud-provider** provides services over the Internet.
transport-agent	A business organization that provides physical transport of storage media such as high-capacity hard drives

... from http://www.nist.gov/itl/cloud/actors.cfm

Further Actor Examples

Definition of Terms

Portal

a web site or web service that provides functionality to Web Users via web-specific applications.

Web User

a human individual that accesses Grid resources through a Portal. This individual may or may not be (also) enrolled in a Virtual Organisation

Grid User

a human individual registered in a Virtual Organisation

Anonymous Web User

a Web User who does not provide unique credentials to the Portal when invoking functionality

Pseudonymous Web User

a verifiably-human Web User that provides authenticated non-identifying information to the Portal when invoking functionality. The aim of verifying that the user is a human is to prevent "automated" use of the portal to stop overload of the portal or use by another service. There are several ways that this could be achieved, e.g. a captcha, a one-time email address on a non-authenticated email (gmail, hotmail, etc) or knowledge that the portal can only be used by people sitting at a public login station (e.g. library walk-up system).

Identified Web User

a Web User that provides authenticated personal identification to the Portal when invoking functionality, but…

... from http://www.jspg.org/wiki/VO_Portal_Policy

Breakout Group 2: Missing Use Cases

Winston Bumpus et al.

SAJACC Missing Use Cases

- Existing ones are mostly IaaS
- Need criteria for completeness
- Mention variations of and variants within use cases
- Need a method (= twiki!) to gather additional use cases
- Need to prioritize these and analyze gaps
- Users (community) should prioritize use cases (interactive user input)
- Need to look at methods for categorization and analysis of use cases

Breakout Group 3: Intellectual Property and Testing Issues

Jin Tong et al.

Intellectual Property Issues

(More questions than answers)

- What's the motivation/impact to the vendors/providers?
- Why would the cloud provider care?
- What is the role of the service vendor? User?
- Is the provider going to participate, and how to participate in the testing?
- How much IP collaboration from the vendor/provider that is needed?
- Answers to these questions will play a strong role in the success of SAJACC

Intellectual Property & Testing Issues

- Testing:
- What's the purpose of doing the whole testing process? How to interpret the test results?
- In the output of the use case testing, should publish whether or not standards are used
- How many systems/interfaces need to be identified?
- If to prove feasibility, one provider should be enough
- Use WS-I.org lessons learned to benefit the process
- Software (SaaS) level interoperability testing is a little harder

Breakout Group 4: Role of Existing Standards

Mark Carlson et al.

3.1 Open An Account

- **Existing Standards**
- PCI
- OAuth
- Banking industry standards – needs researching

3.2 Close An Account

- **Existing Standards**
- PCI
- CDMI – data sanitization

3.3 Terminate An Account

- **Existing Standards**
- PCI
- Customer protection rules should be looked at
- Disposition of privacy data

3.4, 3.5, 3.6 Copy Data Objects Into, Out Of A Cloud; Erase Data

- **Existing Standards**
- CDMI (including data sanitation)
- SRM
- OCCI

3.7 VM Control: Allocate VM Instance

- **Existing Standards**
- OCCI

3.8 VM Control: Manage Virtual Machine Instance State

- **Existing Standards**
- OCCI

3.9 Query Cloud-Provider Capabilities and Capacities

- **Existing Standards**
- OCCI
- CDMI

4.1 Copy Data Objects between Cloud-Providers

- **Existing Standards**
- CDMI
- FTP, gridFTP
- scp
- SRM
- Comment:
- Failure Condition needs to take the verification of a successful copy into account
- The use case is unnecessarily complicated by the use of Virtual Machines here – the data movement should be able to happen provider, client, provider as well, also this case should use the hard disk as well.

4.5 Migrate (fully-stopped) VMs from one cloud-provider to another

- **Existing Standards**
- OVF